



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,194	02/24/2004	Atsushi Ito	109733.01	1079
25944	7590	08/15/2005	EXAMINER	
OLIFF & BERRIDGE, PLC			VO, ANH T N	
P.O. BOX 19928			ART UNIT	
ALEXANDRIA, VA 22320			PAPER NUMBER	

2861

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/784,194

Applicant(s)

ITO ET AL.



Examiner

Anh T.N. Vo

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 2/24/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-16 and 18-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/933,156.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                                |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                           | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/24/2004</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

Acknowledgement is made of the receipt of Preliminary Amendment filed 24 February 2004.

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The references cited on PTOL 1449 have been considered.

### ***Specification***

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Double patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1- 42 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of US Patent Number 6,729,717 in view of Childers et al. (US Pat. 5,442,386).

Ito et al discloses in claims 1-12 of US Patent Number 6,729,717 an ink jet printhead comprising:

- at least one head unit;
- a first surface;
- a second surface;
- a third surface;
- a fourth surface;
- at least one ink supply hole;
- a frame
- at least one ink supply passage
- an adhesive is hardened under ultraviolet irradiation.
- the adhesive is a denatured acrylic base viscosity ultraviolet adhesive.
- a cover plate;
- a plurality of head units;
- a plurality of positioning holes;
- a plurality of positioning pins; and
- a jig.

However, Ito et al. do not disclose a flexible flat cable on the second surface of the at least one head unit.

Nevertheless, Childers et al. disclose in Figures 1a-1b and 2 an ink jet head cartridge comprising a flexible flat cable (22 or 58) on the second surface of the at least one head unit (18 or 56).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the flexible flat cable taught by Childers et al into the printhead of Ito for the purpose of conducting electricity to energize signals to a printhead.

### ***CLAIM REJECTIONS***

#### ***Claim Rejections - 35 U.S.C. § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 1, 27 and 41 are rejected under 35 U.S.C.. 102 (a) as being anticipated by Usui et al (JP8276586).

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Usui et al discloses in Figure 5 a printhead comprising:

- a frame (10) having at least one ink supply passage;

- at least one head unit (12) having at least one ink supply hole (22); and
- an adhesive (52, 54) for bonding the head unit (12) to the frame (10).

***Claim Rejections - 35 U.S.C. § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior arts are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-10, 12-15, 18 and 27-33, 37, and 40-42 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Usui (JP8276586) in view of Momose et al. (US Pat. 5,956,058) and further in view of Yamamoto et al. (5,872,583) and Childers et al. (US Pat. 5,442,386).

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Usui discloses a printhead with all of the limitations of the claimed invention as discussed above but do not disclose the cover, a jig having a plurality of pins and that the adhesive layer is cured by the ultraviolet light and is a denatured acrylic base viscosity ultraviolet adhesive.

Nevertheless, Momose et al teach in Figure 1 an ink jet print head comprising a cover (45) for protecting the nozzle plate (1).

Yamamoto et al teach in Figure 7 a method of manufacturing the printhead comprising the jig (80) having pins (81-82) for easily assembling the printhead.

Childers et al. disclose in Figures 1a-1b and 2 an ink jet head cartridge comprising a flexible flat cable (22 or 58) on the second surface of the at least one head unit (18 or 56).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the cover taught by Momose et al, the jig taught by Yamamoto et al. and flexible flat cable taught by Childers into the printhead of Usui for the purpose of protecting the nozzle, energizing signals to the printhead and easily assembling the printhead. Also, the ultraviolet adhesive used for bonding the plates of the recording head and the printer comprising a plurality of head assembled into a head unit are notoriously well known in the art, and selecting the adhesive type for enhancing the bonding is a common practice and would have been obvious at the time of the invention.

Claims 1-10, 12-16 and 18-42 are further rejected under 35 U.S.C. 103 (a) as being unpatentable over Nagashima (US 6,168,255) in view of Usui (JP8276586) and further in view of Momose et al. (US Pat. 5,956,058) and Childers et al. (US Pat. 5,442,386).

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Nagashima disclose in Figures 1-6 a printhead comprising:

- a jig (70) having pins (72);
- a frame (1); and
- a nozzle plate (2) being adhered to the frame (1) using the adhesive (Figure 5).

However, Nagashima does not disclose the recesses for filling the selectable ultraviolet adhesive and a cover for cover the nozzle plate.

Nevertheless, Usui teaches a printhead in Figure 5 comprising the recesses (52) formed in the frame of the head for easily filling the adhesive to adhere the nozzle plate to the frame.

Momose et al teach in Figure 1 an ink jet print head comprising a cover (45) for protecting the nozzle plate (1).

Childers et al. disclose in Figures 1a-1b and 2 an ink jet head cartridge comprising a flexible flat cable (22 or 58) on the second surface of the at least one head unit (18 or 56).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the cover taught by Momose et al and the recesses taught by Usui and flexible flat cable taught by Childers into the printhead of Nagashima for the purpose of protecting the nozzle, energizing signals to the printhead and easily assembling the printhead. Also, the ultraviolet adhesive used for bonding the plates of the recording head and the printer comprising a plurality of head assembled into a head unit are notoriously well known in the art, and selecting the adhesive type for enhancing the bonding is a common practice and would have been obvious at the time of the invention.

#### ***Allowable Subject Matter***

Claim 11 would be allowable if provide a terminal disclaimer and to rewritten to include all of the limitations of the base claim and any intervening claims. This claim would be allowable because none of the prior art references of record discloses an inkjet printer head comprising a depth from a rib formed in a bottom plate to the support is larger than the overall depth from the nozzle plate to the flexible flat cable the combination as claimed.

Claim 17 would be allowable if provide a terminal disclaimer and to rewritten to include all of the limitations of the base claim and any intervening claims. This claim would be allowable because none of the prior art references of record discloses an inkjet printer head comprising a cavity plate attached to the nozzle plate face by face, the cavity plate having a plurality of escape holes corresponding to each one of the plurality of positioning holes, a diameter of each one of the plurality of escape holes being larger than a diameter of each one of



Art Unit: 2861

the plurality of positioning holes in the combination as claimed.

***CONCLUSION***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (571) 272-2262.

The examiner can normally be reached on Tuesday to Friday from 9:00 A.M. to 7:00 P.M..

The fax number of this Group 2861 is (571) 273-8300.

A handwritten signature in black ink, consisting of stylized, overlapping loops and a long horizontal stroke extending to the right.

**ANH T.N. VO**  
**PRIMARY EXAMINER**

August 12, 2005